Abstract

Proposed are a selective reduction type high temperature superconductor and methods of making the same, the superconductor having a pair of charge supply layers each formed of a $Cu_{1-x}M_x$ surface (1, 1), a first superconducting layer formed of a 5-coordination CuO_2 surface (2) and a second superconducting layer formed of a 4-coordination CuO_2 surface (3). Reducing M ions (e.g., Tl ions) in the charge supply layers by heat treatment in a reducing atmosphere enables the 5-coordination CuO_2 surface (2) as the first superconducting layer to be over-doped and the 4-coordination CuO_2 surface (3) as the second superconducting layer to be optimum-doped. According to the present invention, a high temperature superconductor is provided that with its critical temperature held high has a reduced superconducting anisotropy γ, and provides a high critical current density Jc and a high c irreversibility field Hirr.